

From Face-to-Face to Digital: Identifying Key Themes in Online Business Negotiation

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Abstract: The recent crises (sanitarian, socio-economic, energetic, military) have largely affected the negotiation capacity of organisations worldwide, fostering the development of skills and competencies towards online settings. Classic, face-to-face negotiations have begun to lose importance. Therefore, the aim of this research is to identify possible challenges faced by companies in conducting online negotiations with different partners. A semi-structured in-depth interview guide was developed, and company representatives from different sectors were interviewed to highlight their experience in conducting online negotiations. A total of 32 interview guides, consisting of textual transcripts, were analysed using a multi-method approach to uncover significant themes and patterns. The techniques used included: TF-IDF, to identify relevant keywords; LDA, to model main topics; and cluster analysis, to group responses based on thematic similarities. This combination of methods allowed for a deeper understanding of the collected textual data. The applied analysis allowed the delimitation of three main topics in the considered dataset, which were titled '*Challenges of multi-party negotiations*', '*Structuring online decision-making process*' and '*Comprising diversity of perspectives on negotiations*'. The cluster analysis revealed four possible clusters of answers, comprising company representatives that are more 'Reconciliators' (Cluster 1), 'Euristians' or 'Lateral Thinkers' in Cluster 2, 'Strategists' or 'Pragmatists' in Cluster 3 and 'Minimalists' in Cluster 4. The thematic analysis also allowed for drawing some interesting insights into managing multi-party negotiations, as it requires establishing protocols, communication channels and considering various aspects. The novelty of the research lies in the multi-methods approach laid out in the analysis.

Keywords: online negotiations; interviews; data mining; multi-party negotiations; decision-making process; trust; strategy.

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Introduction

The competitiveness of Europe is crucially dependent on a highly qualified labour force. The existing and anticipated gap between the demand and supply of competent business professionals hinders the development and growth of several industries. The nature of business has transformed from individual transactions into value delivery networks where a series of value-adding transactions are conducted through business negotiations. Business negotiation competencies, especially buyer-seller interaction skills and/or sales skills, are critical means by which business organisations can create added value for both seller and buyer organisations within various value delivery networks, as well as foster their competencies and build trust and collaboration opportunities (Srinivasan et al., 2020).

Business interaction situations provide frameworks where expectations and understanding of needs are shared, and value creation possibilities are developed. Competitive order negotiations and role-play simulations have been created for training B2B and/or B2C sales professionals (Geiger et al., 2022). This exploration phase of a new potential business relationship often serves as a decisive step for future business collaboration. Therefore, outstanding interactional and negotiation skills are essential tools for employees and companies to prosper (Sumaiya et al., 2022).

In contemporary society, under the foresights of the 4th industrial revolution, where the convergence of digital and physical technology will further change and transform the way communication is implemented, it is highly important to prepare employees for the new era labour market to be able to compete in the global transformation, as more complex skills and competencies are required (Hetmańczyk, 2023). Fostered by sanitary restrictions and the availability of technologies and communication infrastructure, private and professional human interactions have rapidly moved to happen online (Dabija et al., 2024).

Although the internet, social media, and salesforce automation strongly affect business operations, face-to-face human interaction – and in this new era, online human interaction – still plays a crucial role in selling and buying more complex, professional solutions. The competencies for successful online negotiation are similar to those required for onsite negotiations. However, they are not the same, as there are peculiarities that must be addressed by the parties involved. Online environments can enhance ICT-related competencies (Ferreras-Garcia et al., 2020) and provide opportunities for self-exploration and compensation for physical limitations (Myoo & Mróz, 2022), while face-to-face interactions may be more effective for developing ethics-related competencies (Ferreras-Garcia et al., 2020). Emotional skills and familiarity with counterparties can influence virtual negotiations (Marchi et al., 2019).

To identify potential challenges companies face in conducting online negotiations with various partners, a semi-structured in-depth interview guide was developed, and representatives from different sectors were interviewed. A total of 32 interview guides were collected, and data was analysed using various data mining techniques: 'Term Frequency-Inverse Document Frequency', 'Latent Dirichlet Allocation', and 'Cluster analysis'. These analysis techniques are preferable for large datasets obtained from open questions, as they facilitate the identification of relevant topics based on the occurrence of key concepts (Osmani et al., 2020; Jäger & Banks, 2022; Gallagher et al., 2023).

The paper is structured as follows: Section 1 provides a literature review on the similarities and differences between virtual and physical negotiations, highlighting the challenges faced in conveying the necessary competencies and skills in these settings. Section 2 outlines the research methodology and is followed by the results and discussions. The paper concludes with recommendations and implications.

Literature review

The negotiation process has been at the foundation of economic interactions since the advent of free trade and has shaped its complexity throughout human evolution (Carnevale & Pruitt, 1992). In the current period, profoundly marked by the COVID-19 pandemic, changes in the global context, and the rapid development of technology, the limitations of physical space have almost completely disappeared, enabling the widespread adoption of online negotiations (Santos & Dias, 2024). The core of the negotiation concept, whether virtual or physical, remains grounded in the cooperation between negotiating partners, depending also on the status, power, and identity of each involved party (Boothby et al., 2023). However, negotiating in an online environment presents several challenges that require customized strategies, a special set of skills, and access to reliable technological solutions (Lavadoux et al., 2021).

Most similarities between face-to-face and virtual negotiations reside in preparation, setting objectives, clear communication, information exchange, and relationship building (Lavadoux et al., 2021). Regardless of the negotiation setting (face-to-face or online), value creation is essential. Capitalizing on McGhee's (2021) concept of "solidarity dividend" (the gains we could achieve from working productively across boundaries to accomplish what we cannot do on our own), advancing thinking regarding the aspects that will enhance the attractiveness of a deal, structuring information using scoring systems, and sharing information creates value for all participants even after the negotiation is closed (Bazerman, 2025).

Trust is a key element for the success of online negotiations, developed over time in online negotiation settings (Akrouf & Woodside, 2023). The parties involved must foster virtual intelligence skills to generate trust based on the information shared in online negotiations (Thompson, 2023). Access to non-verbal communication cues facilitates the rapid and effective development of trust between the negotiation parties involved (Kazemitabar et al., 2022). Effective approaches to negotiations include jointly defining the Pareto-efficient frontier and canvassing all the issues on the table instead of focusing on resolving a certain issue first (Bazerman, 2025).

Negotiation complexity, involving multiple factors and dimensions, affects the behaviours and outcomes of the parties (Zhang et al., 2021). Maximising the outcomes of a negotiation can continue after the parties reach an agreement (i.e., post-settlement settlement), especially when people are feeling less adversarial and more open to sharing information (Bazerman, 2025). Effective approaches to negotiation can help entrepreneurs tackle uncertainty and ambiguity (Saravathy & Botha, 2022). Developing negotiation capacity among humanitarian professionals is crucial for efficient field operations (Grace, 2020). Overall, negotiation research is embracing complexity, examining the nuances of social interaction, and studying real-world contexts to offer practical insights (Boothby et al., 2023).

Research methodology

This qualitative research was conducted to analyse the online negotiation challenges faced by companies from various sectors during the recent health pandemic when conducting business negotiations with their stakeholders (suppliers, distributors, etc.). The methodology involved using a semi-structured interview guide designed to explore the experiences and strategies of company representatives in top or middle management positions. Respondents were selected based on their involvement in at least one online negotiation conducted during the restrictions. Responses were collected from four European countries: Austria, Germany, Finland, and Romania.

The collected data were analysed using a combination of qualitative techniques and specific text analysis tools, as follows:

- 'Term Frequency-Inverse Document Frequency' (TF-IDF) analysis: This technique was used to identify keywords in the text corpus, based on their relative frequency. TF-IDF is a well-known method for extracting key information or observing the evolution of concepts in large, well-structured documents (Ozyegen et al., 2022; Gallagher et al., 2023).
- Bag-of-Words (BoW): The BoW method has been applied to analyse significant text features, ignoring word order or grammatical relationships. This technique is valuable for detecting general semantic patterns and is often combined with other analytical methods, such as thematic or cluster analysis (Yan et al., 2020; HaCohen-Kerner et al., 2020).
- Latent Dirichlet Allocation (LDA): LDA has been used to identify latent thematic structures and main topics in a textual corpus. This method is essential for analysing large textual datasets and facilitates understanding thematic complexity. LDA can be extended by integrating with other methods, such as cluster analysis (Hagg et al., 2022; Osmani et al., 2020).
- Cluster analysis: Cluster analysis was used to group responses according to identified themes. This involved organising responses based on keyword frequency and patterns observed in the data, determining the optimal number of clusters and providing a clear perspective on the subgroups identified within the dataset (Jäger & Banks, 2022).

This methodological combination allowed for a systematic and rigorous approach to the data, providing a detailed perspective on how companies managed online negotiations during the pandemic. The results obtained were based on both the frequency and relevance of keywords and the thematic structuring and grouping of responses according to common characteristics.

Results

Descriptive analysis

The descriptive analysis provides valuable information about the structure and content of the answers received. The length of responses varies significantly, with an average of about 92 words and a standard deviation of 45 words. This suggests that some responses were more detailed while others were more concise. The average sentence length is approximately 15 words. Bag-of-Words analysis reveals that the most frequent words are: 'group' (71 occurrences), 'negotiation' (57 occurrences), 'parties' (38 occurrences), 'involved' (33 occurrences), 'challenge' (26 occurrences) and 'difficult' (23 occurrences). These frequent words suggest that the responses focus on the size of the group involved in the negotiation, the difficulties of multi-party negotiations and how to deal with these challenges.

Significant correlations (above 0.7) were found between topics related to the difficulties of the negotiating party group and online process issues. Sentiment analysis of the text revealed a neutral/analytical tone in 49% of cases, but also 28% negative sentiment when discussing the difficulties involved. TF-IDF analysis highlights words with high scores such as 'wavelength' (0.31), 'accountant' (0.31), 'spontaneity' (0.31), 'moderator' (0.27) and 'parity' (0.27). These words highlight specific aspects such as the synchronisation of the group of negotiating parties, the diversity of roles and the importance of a moderator/mediator in online negotiations. So, the descriptive analysis highlights the complexity of online negotiations, especially in the case of large and heterogeneous groups. Word frequency and sentiment analysis indicate significant difficulties in coordinating groups, managing divergent perspectives, and implementing effective processes. At the same time, the issues highlighted by TF-IDF emphasize the need for clear mechanisms and well-defined roles to support effective negotiations in the online environment.

Delimiting topics by representative keywords

The LDA thematic modelling identified three main topics in the responses conveyed employing the implemented semi-structured in-depth interview guide.

Topic 1: *'Challenges of multi-party negotiations'*. The first topic contains words such as 'group', 'parties', 'involved', 'negotiation', 'challenge', and 'deal'. It addresses the direct impact of the size of the group involved in the negotiation on the dynamics of online negotiation. With more parties involved ('group', 'parties', 'involved'), it makes the negotiation more challenging to reach a 'deal' or common agreement. The keywords emphasize the increased complexity once the number of participants in a negotiation exceeds two parties. In addition to highlighting the obvious challenges ('challenge', 'deal'), this topic also suggests other important issues related to multi-party online negotiations, namely:

- Coordinating and aligning visions becomes extremely difficult when multiple parties ('parties', 'involved') are involved. It is complicated to reconcile the multiple agendas and diverging objectives of the stakeholders involved in a negotiation.
- There is an increased risk of deadlock or unsatisfactory compromises for some of the parties in a negotiation ('deal') due to the participants' multiple and potentially highly divergent points of view.
- Decision-making becomes exponentially more complicated, requiring extensive rounds of negotiation and give and take.
- Human factors such as egos, nervousness, and lack of trust become more pronounced when more parties are involved.

Topic 2: *'Structuring online decision-making process'* contains terms such as 'online', 'communication', 'process', 'effective', and 'decisions'. This topic refers to the additional challenges the online environment brings when multiple parties are involved in negotiation. Effective communication ('communication'), robust processes ('process') and clear decision-making mechanisms ('decisions') become even more critical to cope with the increased complexity of multi-party negotiation in the virtual environment. The absence of face-to-face interaction between the negotiating parties adds to further difficulties, requiring the delineation of certain:

- robust, highly structured communication channels ('process', 'effective') to avoid misunderstandings and keep negotiations on track.
- ultra-clear, consensual decision-making mechanisms to prevent confusion and coordination failures.
- extra efforts to build trust and empathy in an impersonal virtual environment.
- adjacent activities of careful management of asynchronous communication and possible time gaps.

Topic 3: *'Comprising diversity of perspectives on negotiations'* includes notions such as 'different', 'interests', 'understand', 'perspectives', and 'individual'. This topic covers the pressing need to manage and reconcile the diversity of interests, perspectives and individual approaches ('interests', 'perspectives', 'individual') when several parties are involved in a negotiation. Proper 'understanding' of the motivations of the different parties is essential to overcome divergences and reach consensus. In a large and diverse group of negotiating parties, several courses of action can be identified, namely:

- It is essential that there be intense efforts to really 'understand' the unique motivations, interests, constraints of each party ('interests', 'perspectives').
- A consultative, empathetic approach is needed to find out the real concerns of each partner.
- Negotiators must be open to creative ideas and solutions to accommodate the needs of all parties ('different').
- Mediation and facilitation become critical to overcome deadlocks and to reconcile divergent perspectives.

These three topics highlight the multiple layers of complexity involved in a multi-party online negotiation, from coordinating the large negotiating group to technology-mediated communication and reconciling the extreme diversity of perspectives. The right approach requires robust structures and the flexibility to manage these challenges dynamically at all decision-making levels involved. The topics identified, therefore, capture both the impact of the large number of participants on the dynamics of online negotiation (Topic 1), as well as the additional challenges of communicating and coordinating in a virtual environment (Topic 2) and the critical need to manage multiple and often conflicting perspectives (Topic 3). To address these challenges, the responses suggest the need for clear online communication protocols, open communication channels, efforts to understand the motivations of all parties, and effective facilitation and mediation techniques when multiple partners are involved in online negotiation. These topics suggest that the responses cover issues related to the challenges of group negotiation (Topic 1), those related to the online communication process (Topic 2) and the need to understand the different perspectives and interests of the parties involved (Topic 3).

The three identified topics reflect the multiple levels of complexity of multi-party online negotiations. From coordinating large groups to managing virtual communication and reconciling divergent perspectives, these themes highlight the challenges and possible solutions in such contexts. The responses suggest the need for robust structures, open channels of communication, efforts to understand the motivations of each party and the use of a mediator to facilitate the process. In other words, it is emphasised that the success of multi-party online negotiations depends on the combination of clear structures and the flexibility needed to manage emerging challenges dynamically.

Cluster analysis

The cluster analysis was carried out by applying the silhouette method, which identified four clusters of respondents' perceptions of online negotiations. Two clusters have high silhouette values (~ 0.4), and the other two have lower values (~ 0.1). Thus, the four clusters are:

Cluster 1, called '**Reconciliators**' (40% of respondents), focuses on the difficulties and increased complexity of online negotiations when multiple parties are involved. Interviewees' responses forming this cluster recognise that negotiation becomes more difficult with multiple participants due to managing multiple and sometimes conflicting perspectives, obstacles in decision-making, potential lack of coordination, etc.

Cluster 2 comprises '**Euristians**' or '**Lateral Thinkers**' (35% of respondents); it highlights the benefits of diversity and multiple perspectives when several stakeholders are involved in a negotiation. These responses highlight how varied ideas and points of view can lead to better solutions and a deeper understanding of the complex issues that require negotiation.

Cluster 3, entitled '**Strategists**' or '**Pragmatists**' (15% of respondents), stresses the need for thorough preparation, organisation, and clarity of roles from the outset. The responses emphasize setting clear objectives, communication methods, and decision protocols to effectively manage multi-stakeholder negotiation challenges.

Cluster 4 defined '**Minimalists**' (10% of respondents) as those who advocate for small, homogeneous teams of parties involved in a negotiation. This can lead to efficient and direct negotiation, while large and heterogeneous groups are seen as adding unnecessary complexity to the process.

Cluster analysis provides detailed insight into the diversity of respondents' perceptions of online negotiations. Identifying clusters can guide the development of tailored strategies to address each group's specific challenges and capitalize on identified strengths.

Thematic modelling analysis

The thematic modelling analysis revealed that 37% of the topics identified focused on the challenges of coordinating a large and heterogeneous group of parties involved in online negotiations. Clustering confirmed this perspective, with the largest cluster (40% of responses) highlighting significant obstacles brought about by group size. A key component recommended by 68% of responses was the establishment of clearly defined protocols and processes, such as structured communication channels (mentioned in 28% of cases) and consensus decision-making mechanisms (22%). At the same time, 53% of the topics emphasised the need to cultivate a deep understanding of each party's perspectives and interests. A consultative and open approach was supported by 41% of responses, to find creative solutions to accommodate everyone's needs. Building trust and empathy in the virtual environment was seen as critical by 33% of respondents, while 27% recommended involving a neutral mediator/facilitator to overcome impasses.

Keyword analysis showed that 'trust' appeared in 19% of responses, 'time' in 16%, and 'culture' in 11%, suggesting the additional challenges of trust, time constraints and cultural differences. Larger groups tend to complicate and hinder negotiations (37% of responses). Coordinating multiple perspectives, aligning interests and reaching consensus becomes more difficult as the group grows (45%). Smaller groups involved in negotiation facilitate effective communication and reduce information overload (19%). Heterogeneous groups bring diverse, valuable perspectives and the potential for divergent interests (53%). Homogeneous groups may align more easily but lack diversity of thought (11%). Dynamics between parties, relationships, interests and power positions influence negotiation (22%). Managing multi-party negotiations requires establishing protocols, communication channels, and decision-making processes, which is essential (68%) - structured communication channels mentioned in 28% of cases, and consensus decision-making mechanisms in 22% of the cases. A consultative and open approach is recommended to deeply understand each party's perspective (41%). Building trust and empathy in the virtual environment is considered crucial by 33%. A neutral mediator/facilitator can help to overcome deadlocks (27%). Other recommendations may refer to clear assignment of roles (16%), effective time management (14%), and use of interactive tools (9%).

The responses reinforce that although large and diverse groups create coordination and alignment challenges, they offer broader perspectives. Structured processes, open communication, trust-building and competent facilitation are key methods for harnessing group diversity while managing the inherent complexities. The results of this analysis highlight the inherent complexity of online multi-party negotiations, but also their potential to generate innovative solutions through the diversity of perspectives involved. Adopting structured processes, combined with trust building and the use of mediation methods, is an essential step for effectively managing these negotiations. In an increasingly digitalised global context, these findings provide a solid basis for the development of strategies adapted to the needs of modern negotiations.

Discussions

Group size and composition significantly affect the dynamics of online negotiations in the following main ways:

1. Large groups of negotiators, with many parties involved (reflected in Topic 1), make negotiation much more complex and challenging. It is more difficult to coordinate and align multiple divergent agendas, perspectives, and objectives. The risk of deadlock or unsatisfactory compromises increases exponentially as the number of participants increases. Decision-making and reaching a common 'deal' become extremely difficult tasks (Kern et al., 2020).
2. The heterogeneous composition of the negotiating stakeholder group, made up of straddlers with very diverse interests (highlighted in Topic 3), creates the pressing need to make strenuous efforts to fully understand each stakeholder's

unique motivations, interests and constraints. Reconciling multiple perspectives requires a consultative, empathetic approach and openness to creative solutions to accommodate everyone's needs and to reach consensus. Effective consensus-building requires understanding, empathy, self-other differentiation (Håkansson Eklund & Summer Meranius, 2020), and deep thinking about others' perspectives (Kuhn, 2020).

3. The online environment adds challenges for large groups of negotiating parties (as per Topic 2). The absence of face-to-face interaction requires ultra-structured communication channels, rigorous decision-making protocols and extra efforts to build trust and empathy in a virtual environment. Asynchronous communication can also create additional difficulties. Trust, a crucial factor in team performance, is harder to establish virtually but can be built through organizational culture, individual behaviours, and foundational components (Soomar, 2020). Leadership emergence in virtual teams differs from face-to-face settings, with extraversion playing a less significant role (Wilson et al., 2021). Successful virtual team management involves establishing new realities, maintaining trust, upgrading communication tools, encouraging shared leadership, and ensuring alignment with organizational values (Newman & Ford, 2020).
4. As the group of negotiating parties becomes larger and more heterogeneous, human factors such as egos, lack of trust, and nervousness become more pronounced and must be carefully managed to avoid negotiation failure. Identifying the best solution, even a compromise, but one that is to everyone's advantage, and does not cause disruptions, is a possible goal to be pursued in online negotiations (Asa et al., 2022).

Thus, the size of the negotiating stakeholder group and the diversity of its composition are found to have a significant impact on its dynamics, bringing extended complexity in coordinating visions, reconciling multiple perspectives and managing effective communication and decision-making processes in the online environment (Yang et al., 2020). Highly structured yet flexible approaches are needed to meet the challenges of multi-stakeholder online negotiations, as online engagement faces limitations in dealing with complex issues compared to face-to-face meetings (Jäger et al., 2023). Across clusters, the analysis captures contrasting perspectives - multi-party negotiations add challenges that require careful management, coordination and open communication; but they also bring opportunities through diversity of thinking if properly harnessed.

According to the thematic modelling and clustering analysis, the recommended approach to deal with the challenges of online negotiations with more than two parties involved is a structured, but flexible and empathic one. A key component is to establish a clearly defined negotiation framework, protocols and processes for communication, decision-making, keeping the negotiation on track, and mitigating risks (Dilek & Baysal, 2021). Robust channels of communication, transparent consensus decision-making mechanisms and rigorous planning of steps and deadlines are critical to manage the complexities of multi-party negotiation in the online environment. Problem-solving physical interactions can contribute to negotiations through a complex transfer process (Fisher, 2020).

At the same time, given the large and heterogeneous group of negotiating parties, it is imperative to cultivate a deep understanding of each party's perspectives, interests and constraints (Easter et al., 2022). A consultative approach, open to the constructive exchange of different ideas and visions, is essential to identify creative solutions that accommodate all needs. Multiparty negotiators have weaker fixed pie perceptions and are engaged in more integrated strategic behaviour than dyadic negotiators (Kern et al., 2020). Building trust, genuine connection and empathy in an impersonal virtual environment is also key to successful online negotiations (Marchi et al., 2019; Thompson, 2023). To effectively ease this complex process, the involvement of a neutral mediator or facilitator with experience in resolving disputes and overcoming impasses is recommended. They can help identify points of agreement and disagreement, clarify roles

and expectations, and maintain discipline and a constant focus on finding the best solution to the issue under negotiation (Bogacz et al., 2020).

Opportunities for informal interactions between parties involved in a negotiation can help to build relationships and delineate the initial common ground of mutual understanding (Branas-Garza et al., 2023). In essence, the approach requires a combination of robust structures and processes to manage the complexities of multi-party online negotiations, as well as the flexibility, openness, and empathy needed to reconcile differing visions and arrive at solutions acceptable to all actors involved. Only through this synergy can the inherent obstacles be overcome and the potential benefits of diverse perspectives can be realised. Striking the right balance by harnessing diverse perspectives in an organised and well-structured process proves to be a key conclusion for successful multi-stakeholder online negotiations.

Conclusions

Online negotiations with large, diverse groups present significant challenges, such as coordination difficulties, trust issues, and complex decision-making processes. However, they also offer opportunities for richer solutions and innovation, provided that structured processes and empathetic communication approaches are deployed effectively.

Clear communication protocols, decision-making mechanisms, and trust-building initiatives are critical to managing the complexities of virtual negotiations. Such frameworks help address the inherent limitations of online environments, such as limited nonverbal cues and asynchronous communication gaps.

While technology enables broader participation and accessibility in online negotiations, human factors such as empathy, trust, and understanding remain essential to success. Combining robust technological tools with strategic facilitation and mediation can ensure equitable outcomes and foster long-term collaboration. Future research could explore in more detail the impact of cultural differences on online negotiations and how emerging technologies, such as artificial intelligence, can improve negotiation facilitation. Longitudinal studies could also assess the long-term effects of group diversity on negotiation outcomes.

In a global context where online negotiations are becoming increasingly common, their success depends on balancing the optimal use of technology and a deep understanding of human dynamics. By adopting strategic and consultative approaches, online multi-party negotiations can turn challenges into opportunities, leading to equitable and collaborative outcomes.

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